SPOTTING A FAKE JOB POSTING

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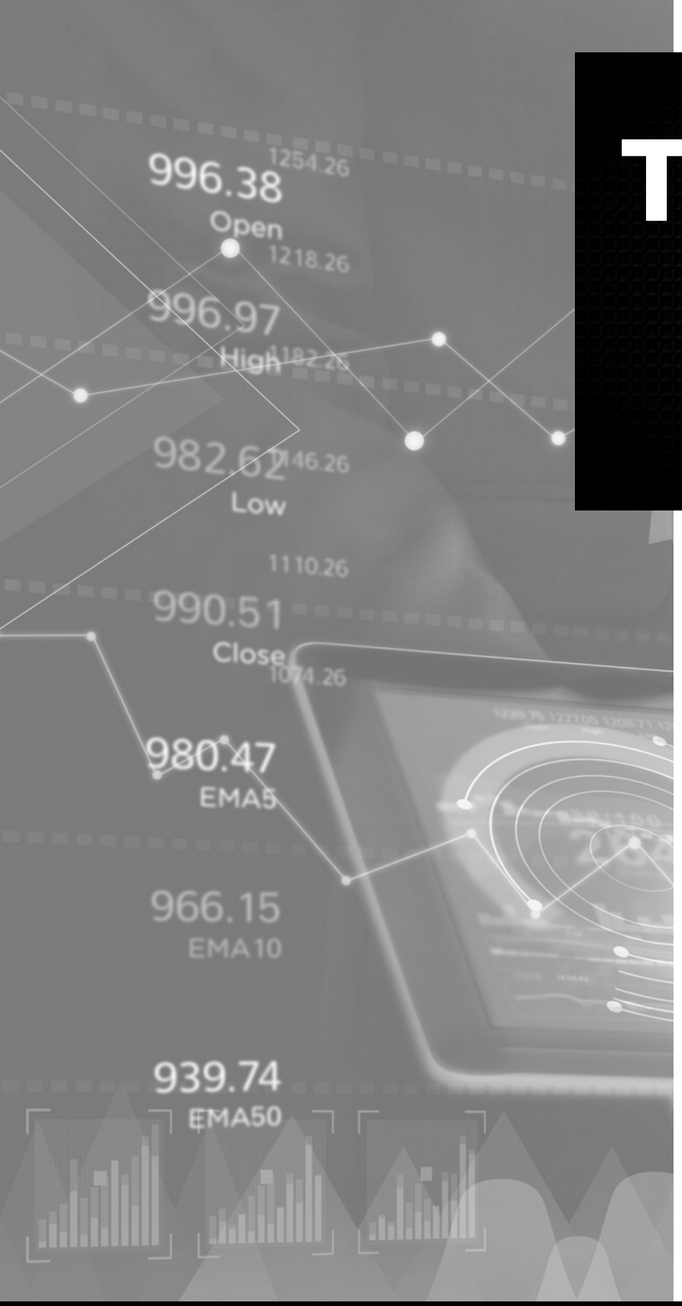


THE DATA

- Using a dataset found on Kaggle
- Consists of nearly 18,000 job postings, with a percentage of them being fraudulent postings
- Includes information on each job posting such as job title, location, department, salary, company profile, job description, requirements, benefits, company logo, employment type, whether the posting is fraudulent or not, and more

Project Goal

To create a model with a high accuracy of predicting whether or not a job posting Is fraudulent.

General Trends

- 96% OF THE POSTINGS HAD AT LEAST 1 MISSING VALUE
- EVERY SINGLE JOB HAD VALUES FOR JOB DESCRIPTION AND JOB TITLE
- SALARY RANGE WAS THE MOST COMMON MISSING VALUE (84% OF THE COLUMN WAS NAN)

Real Job Postings

95%

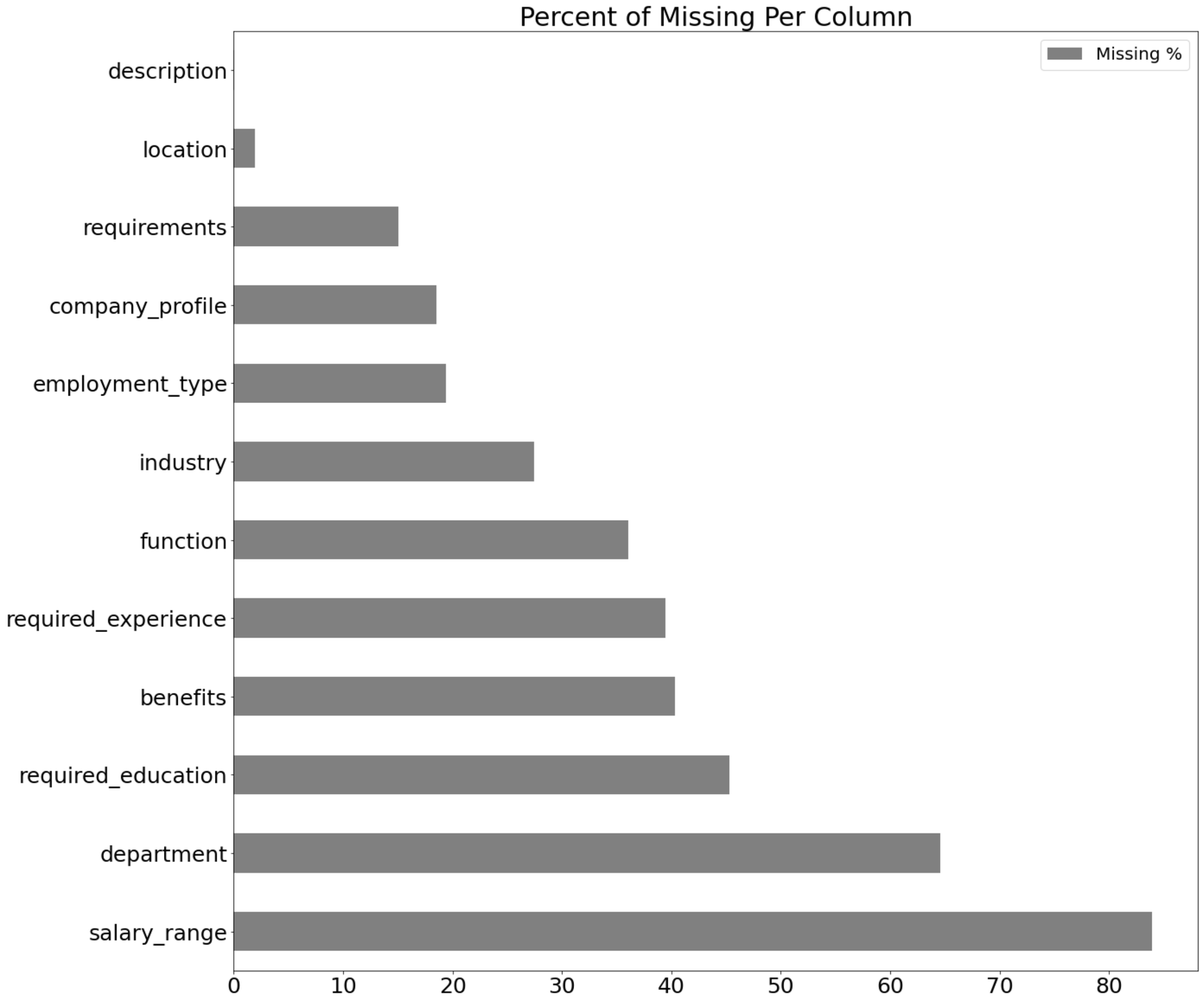
Fraudulent Job Postings

5%

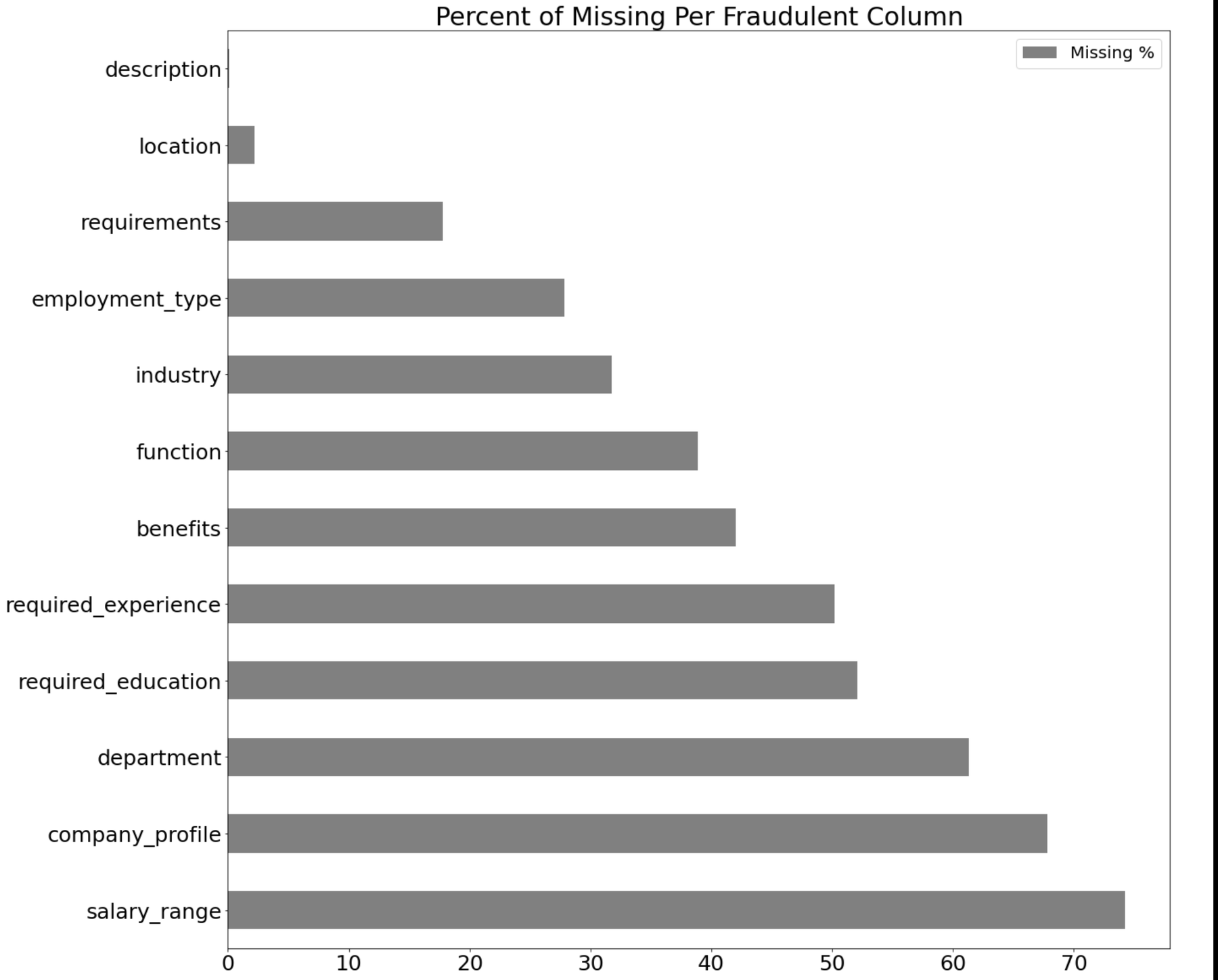
PROJECT TOOLS

OUR PROJECT WAS ANALYZED USING JUPYTER NOTEBOOKS TO CLEAN AND ANALYZE DATA AS WELL AS PLOT VISUALS AND CREATE OUR MODEL.


MISSING DATA

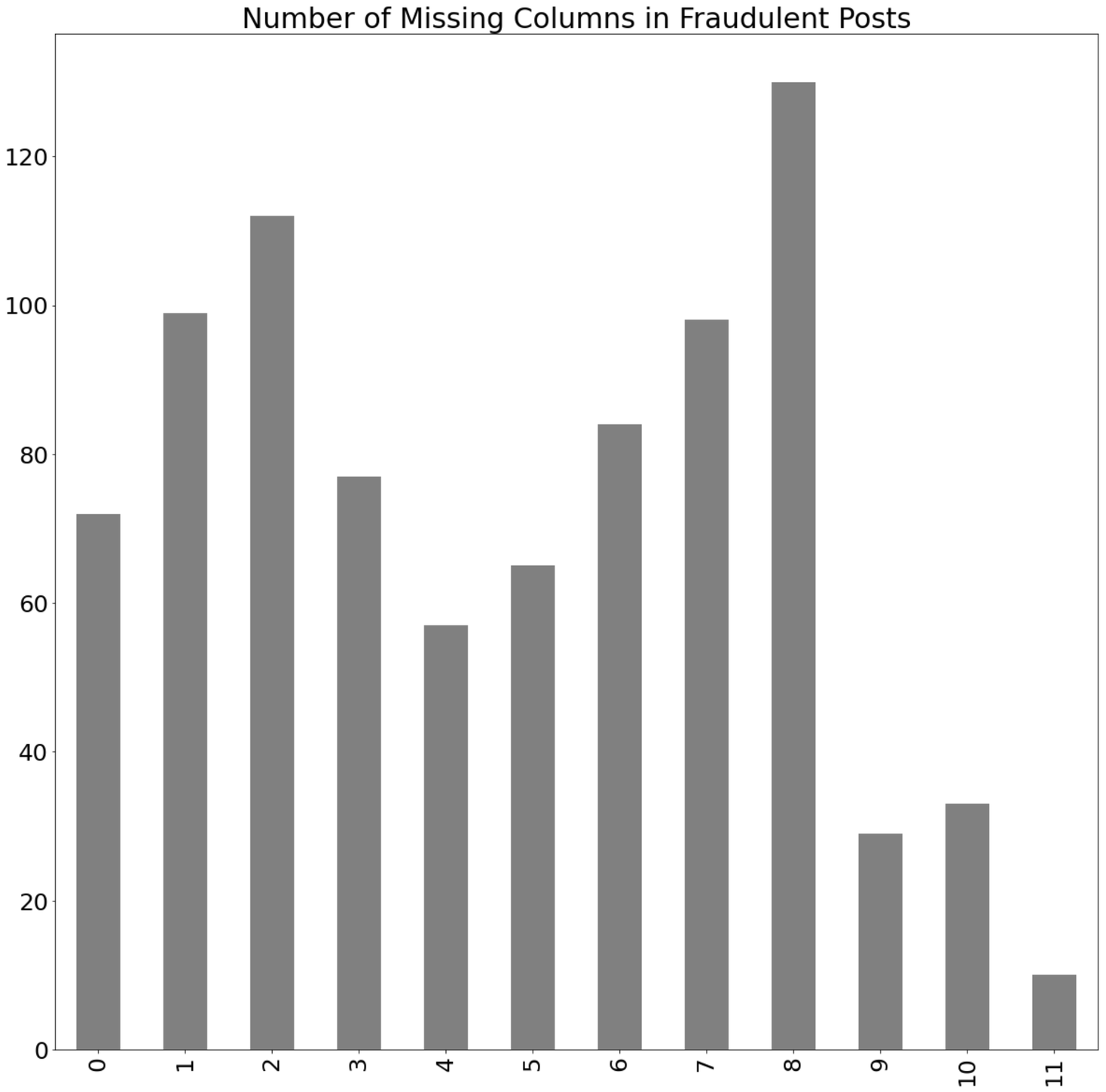


Percent of missing values per column

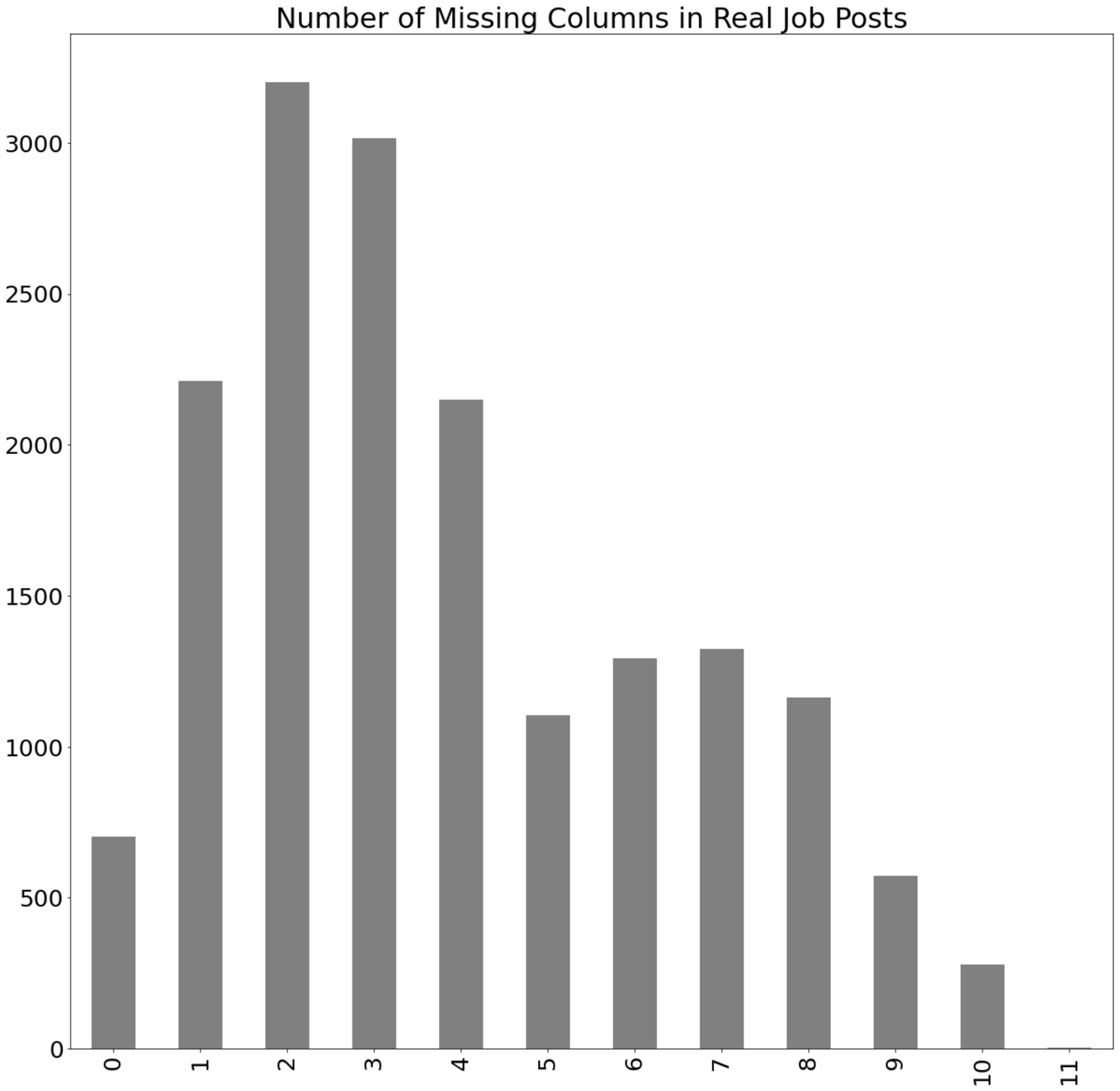


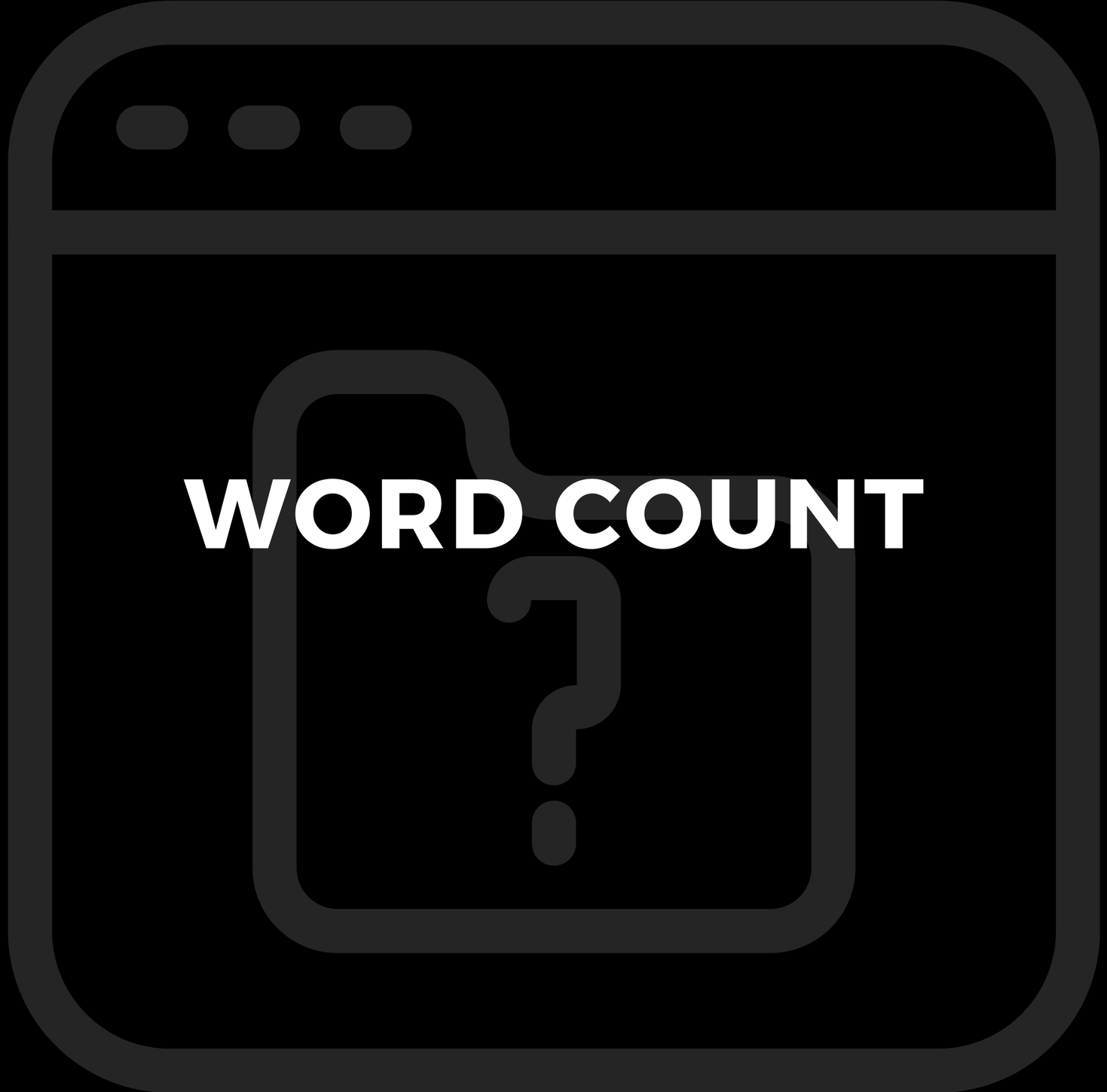
Percent of missing values in each column of fraudulent jobs

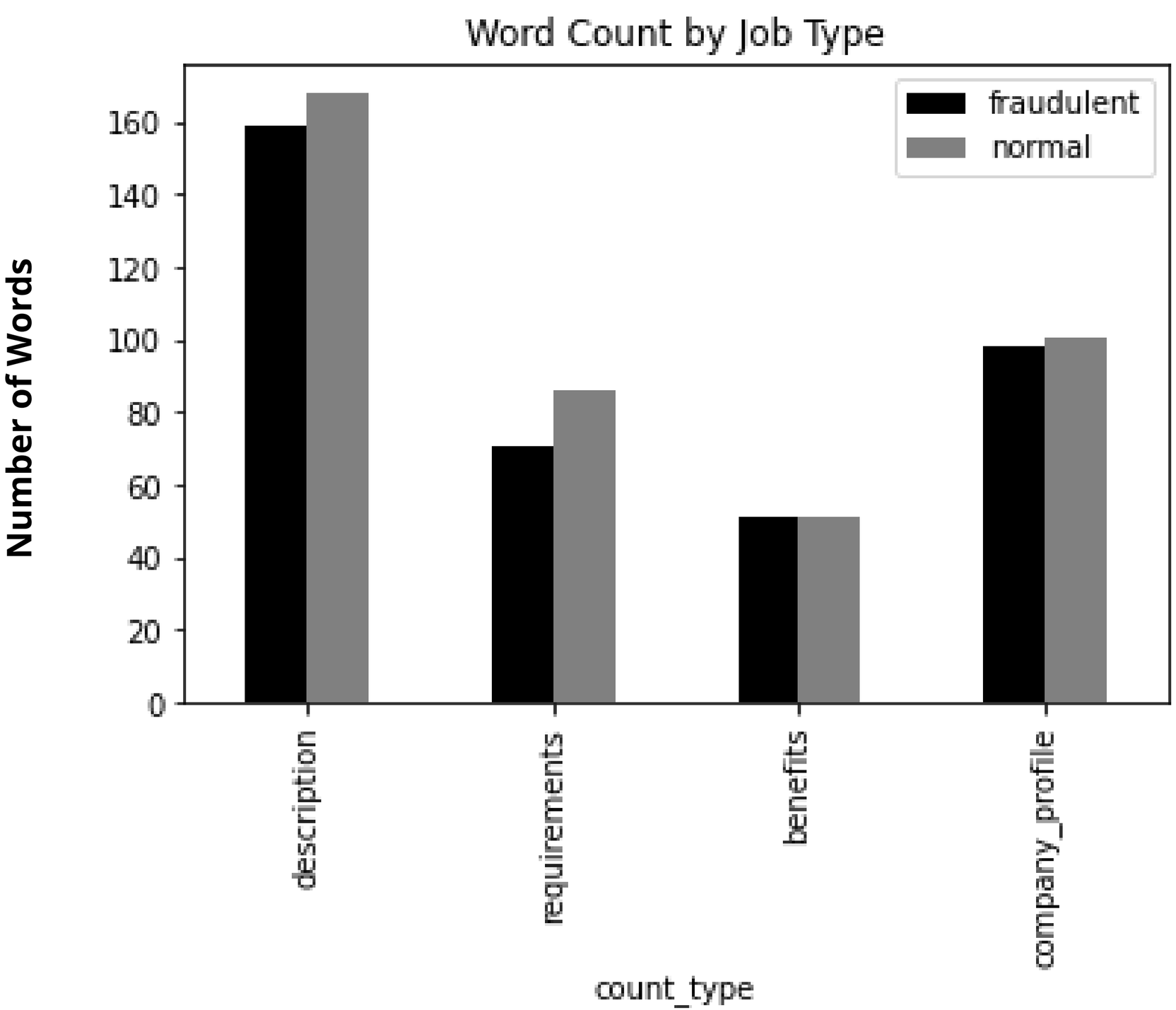
Number of missing columns in fraudulent posts

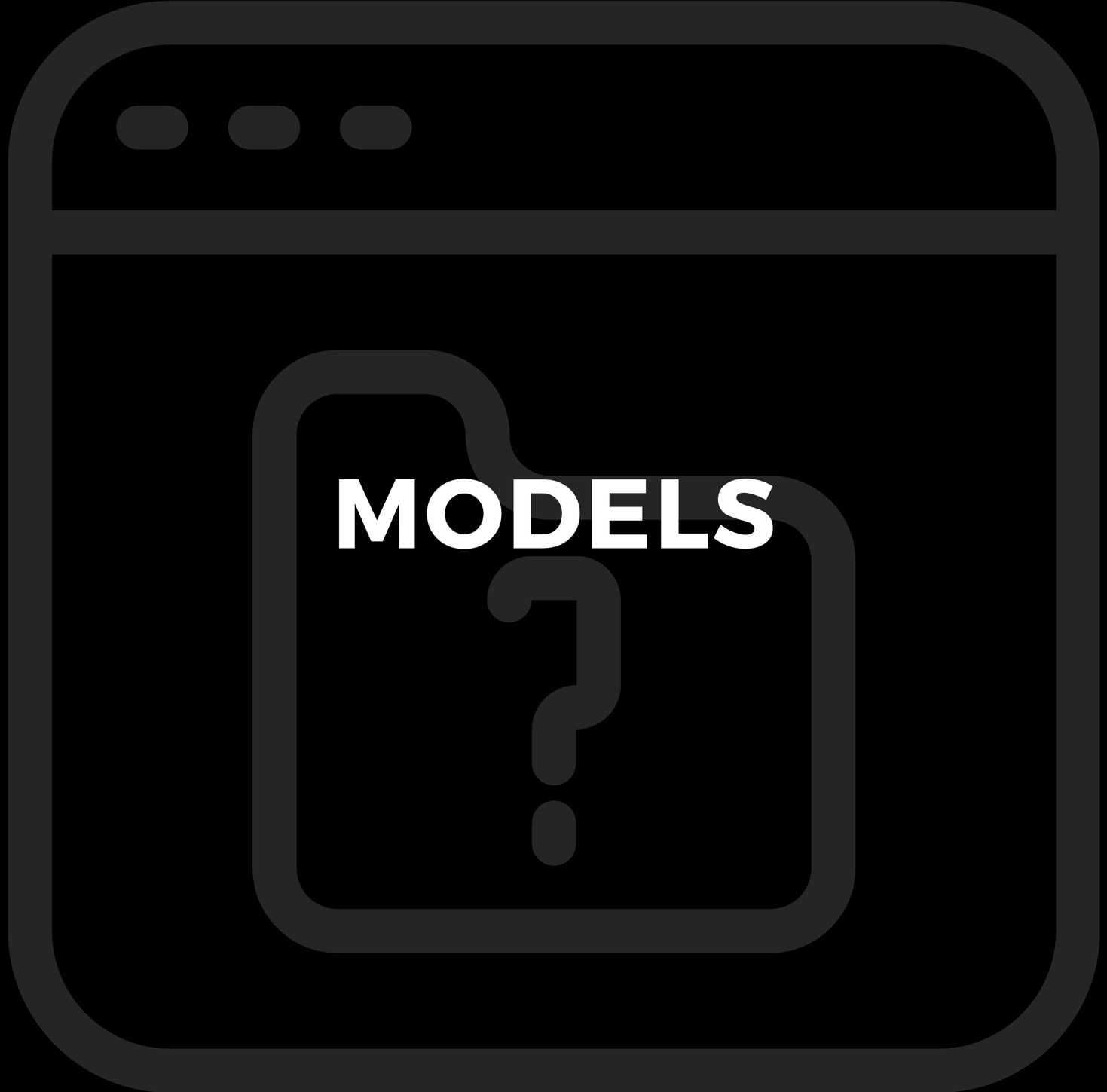


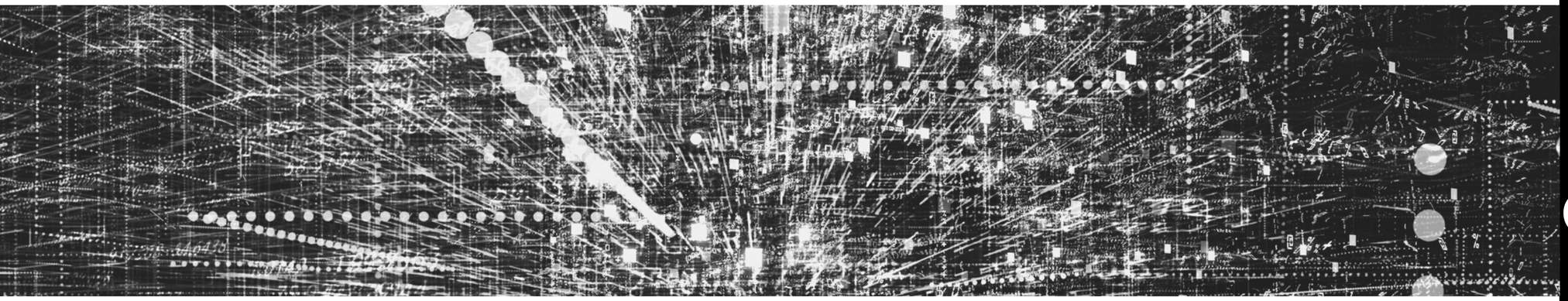
Number of missing columns in legitimate posts




WORD COUNT


Word Count by Job Type
fraudulent
normal
Number of Words
0
20
40
60
80
100
120
140
160
description
requirements
benefits
company_profile
count_type


MODELS



Correlation Coefficients

company_profile	-0.390535
description	-0.040879
requirements	-0.138523
benefits	-0.025213
telecommuting	0.080746
has_company_logo	-0.489713
has_questions	-0.207180
employment_type	-0.042686
required_experience	-0.068714
required_education	0.034008
fraudulent	1.000000

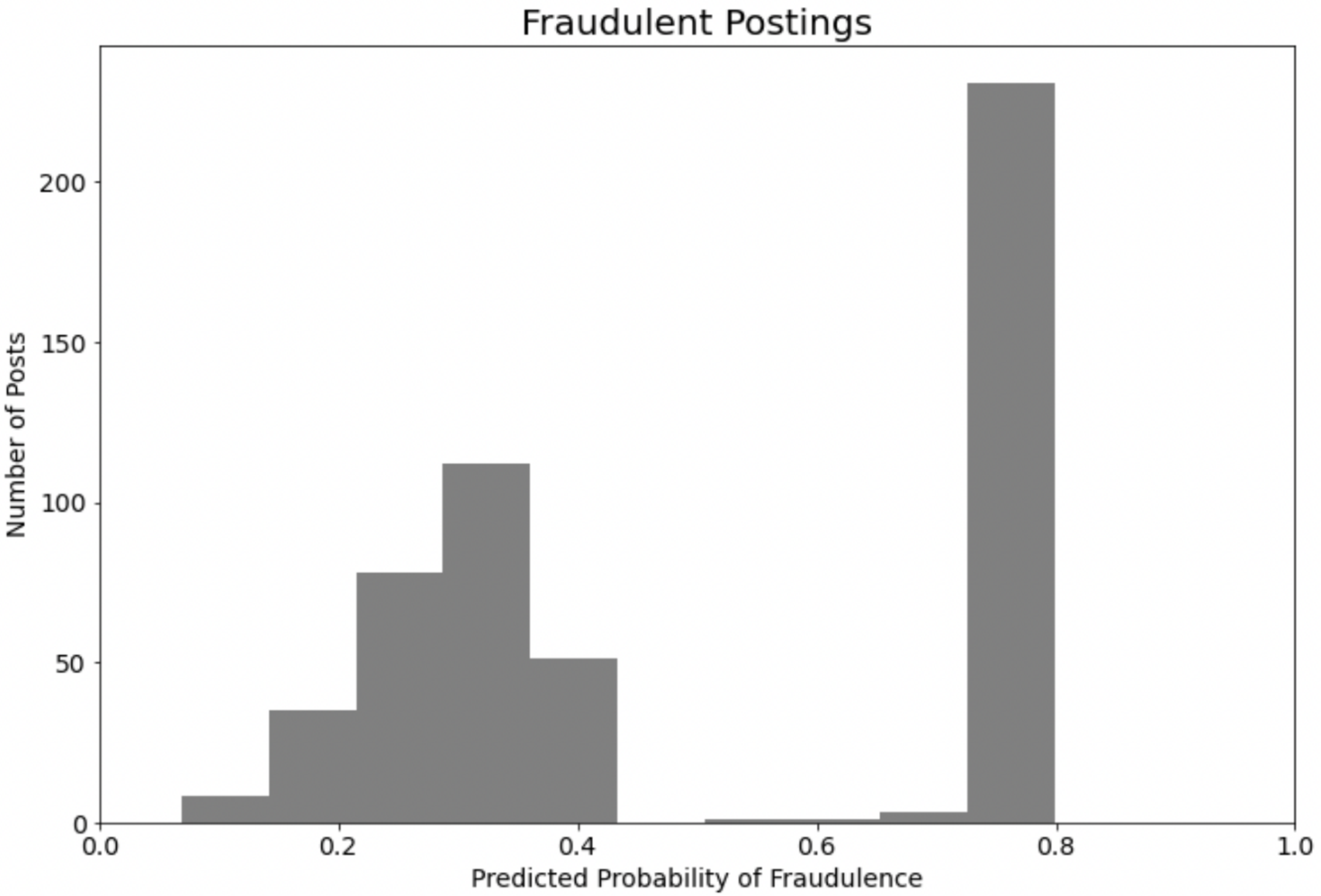
LoCoPro Model

- LOGO, COMPANY PROFILE COLUMNS

Logo/Company Profile: 0.74

	precision
0	0.72
1	0.78

Predicted Probabilities For Fraud. Postings

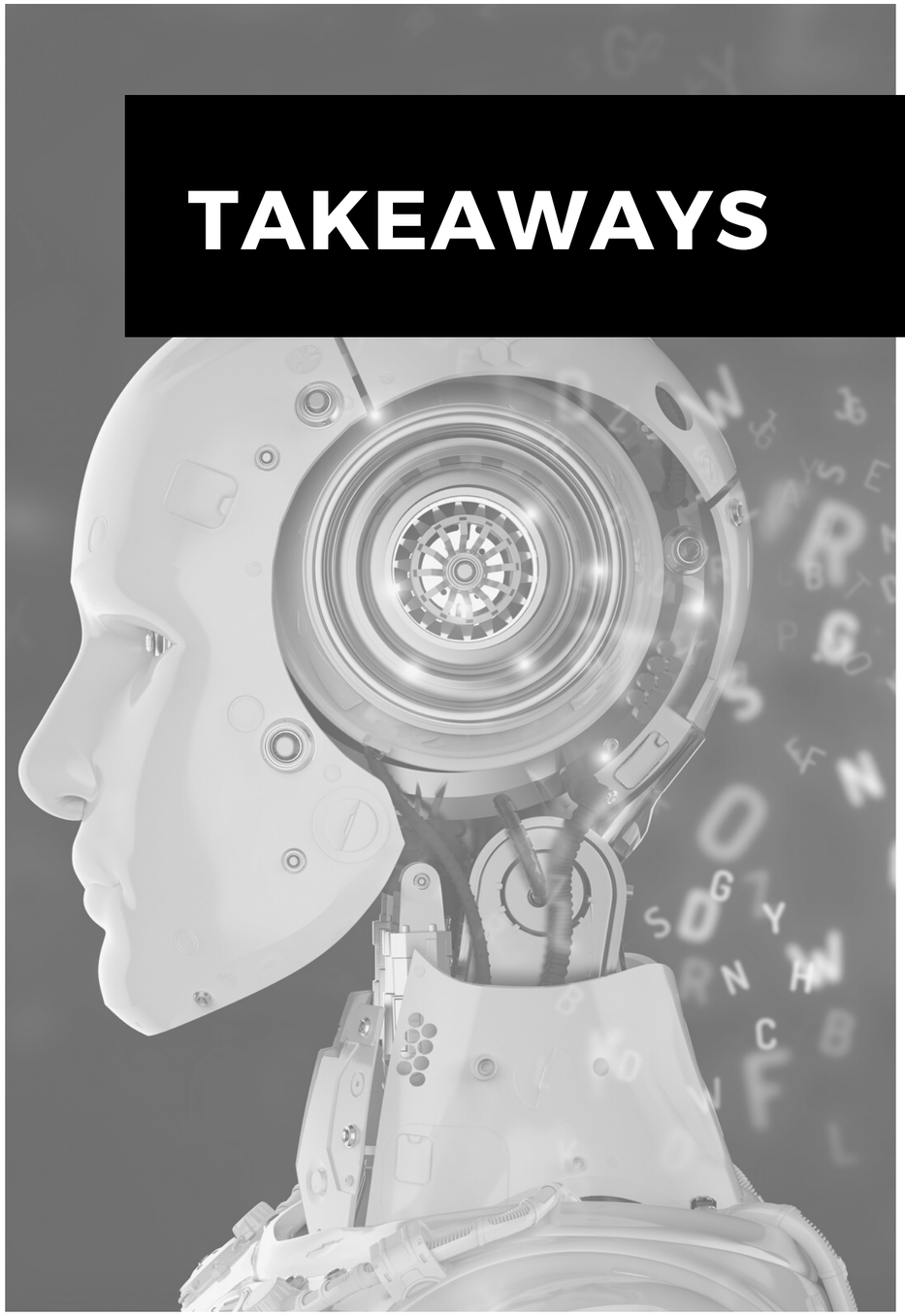


Power Set Model

- USES COLUMNS DESCRIPTION_COUNT, COMPANY_PROFILE_COUNT, HAS_SALARY_RANGE, HAS_EMPLOYMENT_TYPE, DEPARTMENT_ID

	precision
accuracy	0.75
0	0.78
1	0.73

TAKEAWAYS



LOGISTIC REGRESSION MODEL

With the data given, the best models can predict fraudulent job posts between 75% and 80% of the time

WORD COUNT

Most job postings that were real had a slightly higher word count for job description, company profile, and job requirements.

11+ MISSING

We found that if a job posting is missing 11 or more columns it is most likely fraudulent.

SALARY RANGE

Salary range was the most common missing column. Of the real job postings, 84% did not have salaries listed. The fraudulent posts had more salary ranges, and a lot were unrealistic.

Solutions

Predicting a fraudulent job posting

MISSING INFO

Missing information did not hugely contribute to predicting fraudulency except when reaching 11+ missing columns.

WORD COUNT

Using word count for certain columns, we were able to attain the highest accuracy (.75) using a powerset model.

SALARY

Posts with unrealistic salaries listed are more likely to be fraudulent.

COMPANY LOGO

The Company Logo column has the highest correlation coefficient with being fraudulent.

COMPANY PROFILE

Real jobs only had around 20% of the company profile column missing, where fake jobs had 70%.

Thank you for listening!

We hope you can derive your own observations and conclusions from our work.

QUESTIONS?

ASK AWAY!